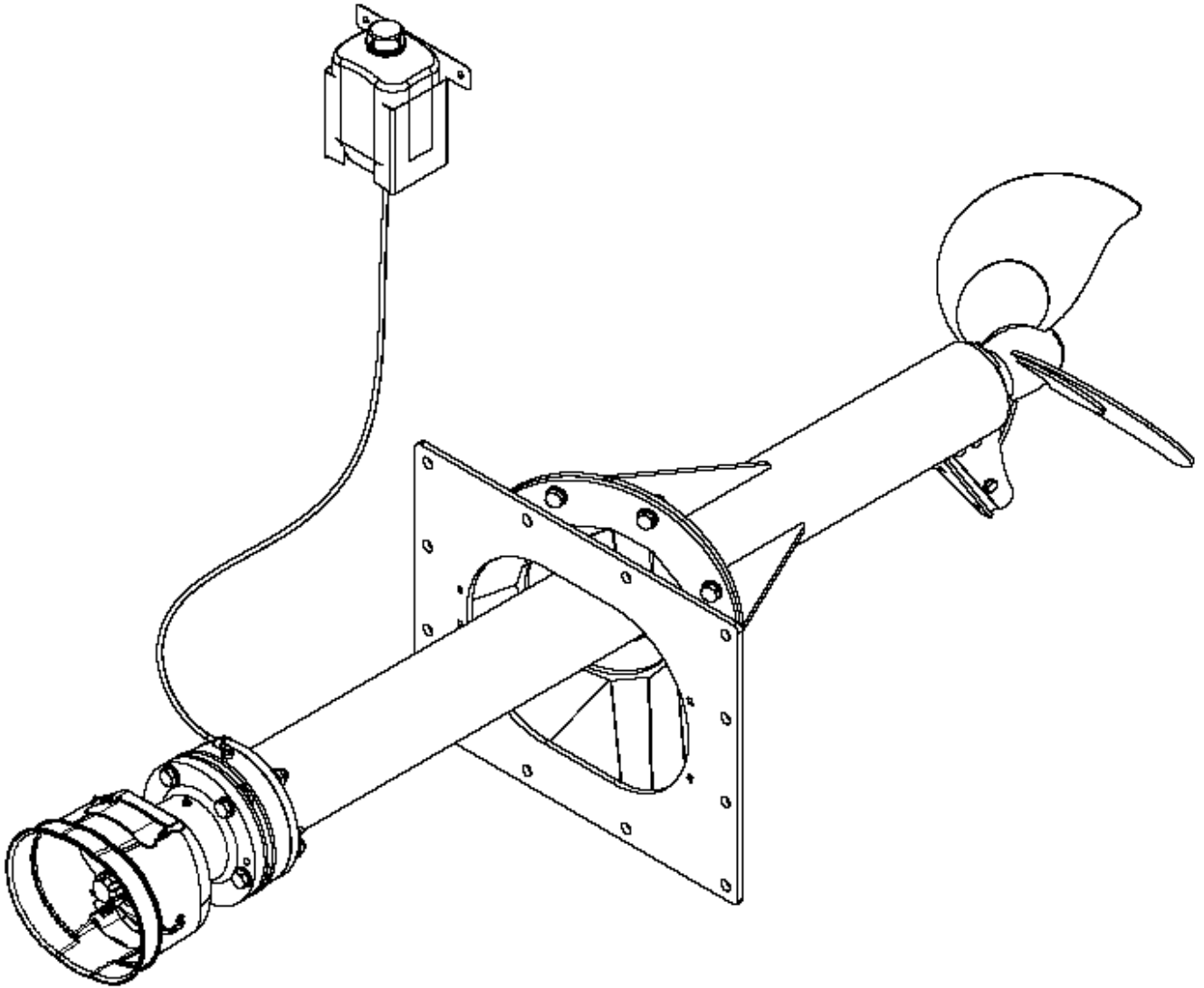


VPO20 Instruction manual

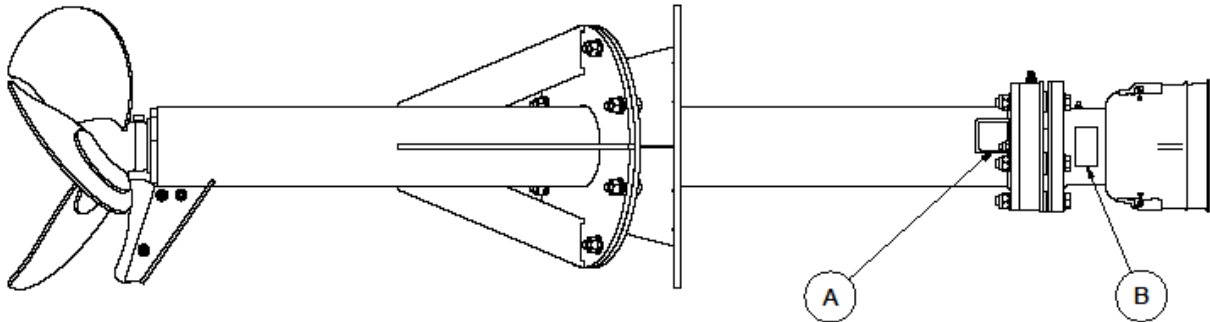


Congratulations on your Duun VPO20.

All Duun tractor operated machines have been engineered and tested in close cooperation with representative users to produce functionally safe and user-friendly machines.

Please read this instruction manual before using the machine.

Good luck!



Machine identification

Serial number and manufacturer are specified on the metal plate (A)

Register the serial number and delivery time on the list below.

Always state the serial number in all inquiries regarding service.

The machine is CE marked (B). This confirms that the machine is designed in accordance with the EU machinery directive.

Serial number

Time of delivery (month/year)

CONTENT

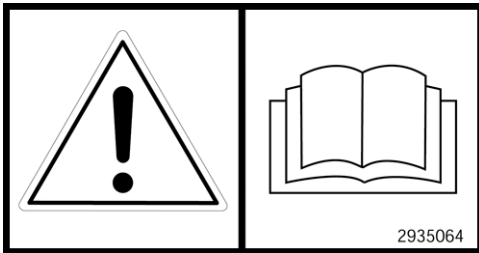
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Safety

All operators, mechanics and the owner must always work carefully with agricultural machinery. Read and observe safety instructions in this instruction manual.

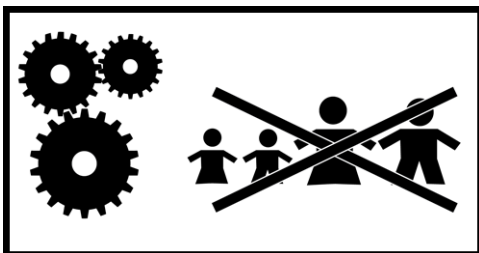


Be particularly aware of warning signs with this symbol, it marks measures that must be carried out in order to avoid accidents. The symbol appears in the instruction manual and on warning signs on the machine.



Instruction manual

All operators, mechanics and the owner must be well acquainted with the instruction in this instruction manual before the machine is taken into use.



Safety of the surroundings

Be very careful when other people or animals are near the machine or tractor. Never start the machine when there are people or animals close to it, also never stand between the tractor wheels and the machine!



Be very careful during maneuvering and installing

Ensure that no one is in the pump's operating radius or "impact area" during installing and maneuvering.



Safe connection and use

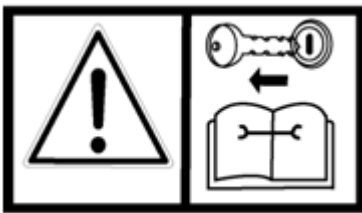
Do not allow anyone to stand between the machine and the tractor when the machine is connected to the tractor. The same applies when using the machine. Ensure that the connection is made in a secure manner.



Power transmission shaft

The tractor is disengaged and the handbrake is applied before the shaft is connected to the tractor's PTO. Max. PTO speed is 540 r.p.m. Make sure that there is the same angle in both joints (ie the pin on the tractor is parallel to the pin on the gearbox). Different angles cause imbalance, vibrations and increased wear. The power transmission shafts must always have protective covers that were originally supplied. **Damaged and worn covers must be replaced immediately!**

During raising and lowering of the rod pump, the power transmission shaft is dismantled.



Safety in case of interruptions and maintenance

Always remember to stop the tractor engine and remove the ignition key before greasing, adjusting, cleaning or carrying out repairs. This is to ensure that the tractor does not start before you have finished.



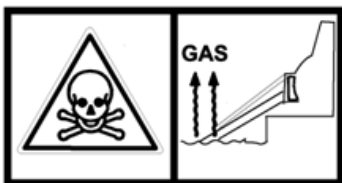
Crushing hazard for hands and fingers with rotating parts

Protective covers must always be fitted except for necessary maintenance and always with the engine stopped. Pay particular attention to the risk of crushing at points marked for this.



Work noise

The noise level during use of the propeller depends on the tractor's general noise level and the acoustics at the workplace itself. In certain cases this can exceed 85db. In such cases, the operator must use hearing protection.

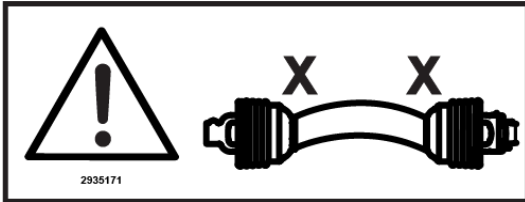


Gas hazard!

During the stirring of slurry, gas evolution occurs which in strong concentrations can be fatal for humans and animals. Follow the following safety regulations to avoid injury! - Avoid air flushing during stirring as far as possible! - Never go down into a slurry container without being absolutely sure that all gas has been removed (can be checked with a gas meter that is submerged with a string) - Never work alone in a slurry container - be at least two people and use a safety harness - lifeline. - Use a fresh air mask! -open doors that the gas has low outlets in the farm building itself during slurry processing.

Check the state of health in the farm building continuously during manure handling!

Avoid any unnecessary stay near the slurry chute and propeller during stirring.



Risk of spraining the power transmission shaft

It is important to adapt the length of the power transmission shaft to each individual tractor. If it is too long, the shaft can be pressed completely together and there is a risk that either the pin on the propeller shaft or the pin on the tractor will be destroyed.

Warranty terms

Duun Wall-mounted propeller mixer has 12 months guarantee against defects in materials and workmanship.

Parts that are not originally manufactured by Duun Industrier as, for example, wheels, hydraulic parts, etc. are subject to these suppliers' guarantees and terms.

In cases where a repair is considered to be covered by the guarantee, the representative must inform the supplier's representatives that the repair is intended executed based on the guarantee.

In this context, the following information must be recorded:

- Product name
- The product's serial no. (see the machine identification)
- Date of sale
- The product owner's address, telephone no.
- The seller with address, tel. no.

In case of such a repair, the supplier is presented with a claim within 3 weeks after the repair date.

Replaced parts are to be kept until a decision has been made with reference to the claim and the replaced parts are to be forwarded to Duun Industrier as for assessment if so required.

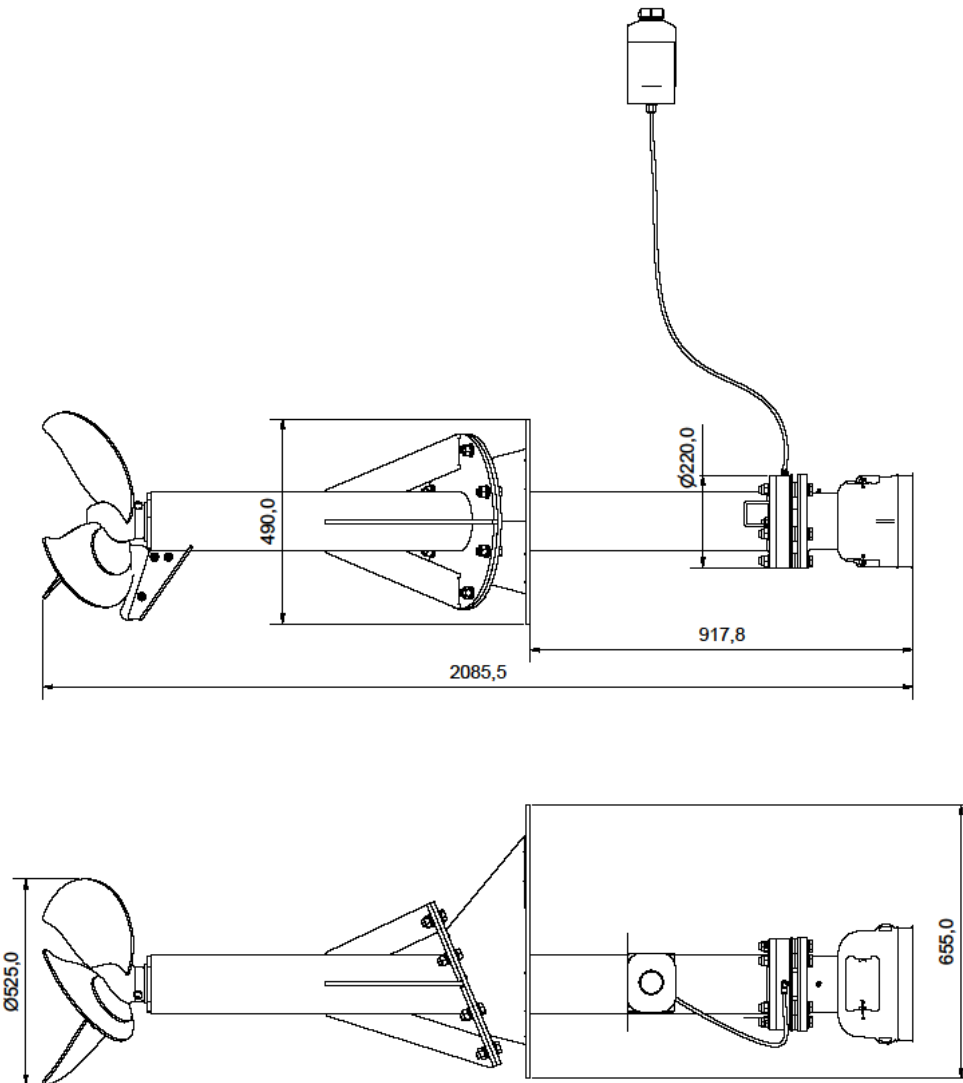
As the employment of the product is beyond our control, we may only guarantee the quality and do not accept liability for the product's general performance.

Duun Industrier as reserves the right to modify the design and specifications and/or make alterations and improvements without notification.

What is not included in the guarantee:

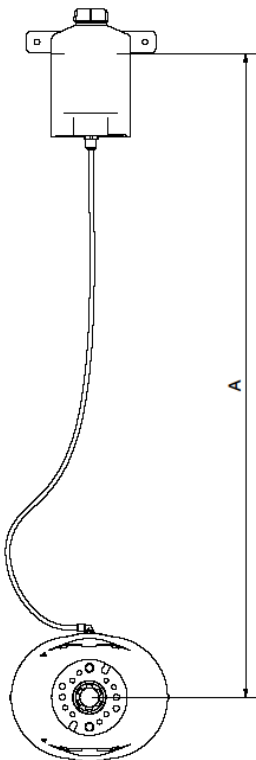
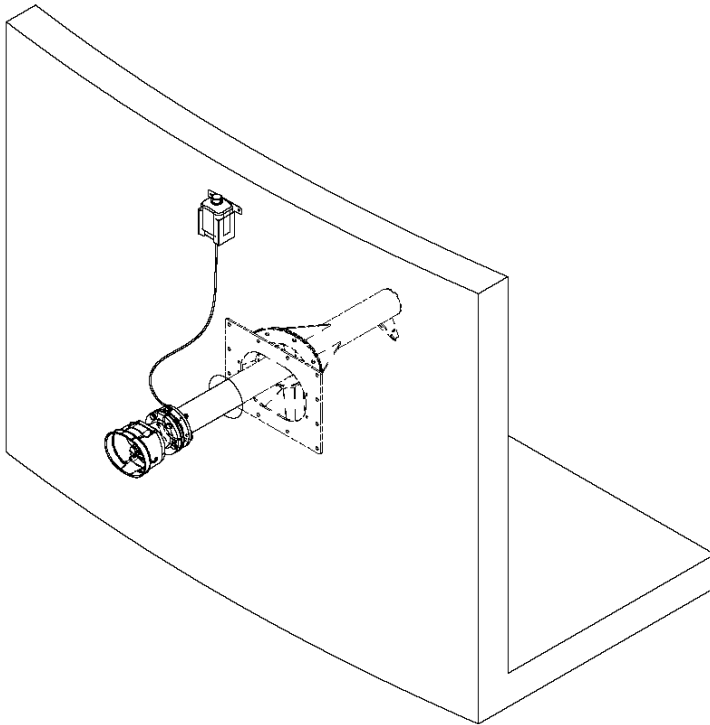
- The guarantee does not cover economic loss as a consequence of interruptions.
- The guarantee does not cover consequential loss due to defects.
- The warranty does not cover damage to galvanization as a result of mixing in acidic liquids.
- The guarantee does not cover defects or damage caused by misuse and uses that are not in accordance with the instruction manual's specifications and guidelines.

Technical data of propeller agitators



Features	Wall propellers VPO20
Net weight	141 kg
Total length	2086 mm
Total width	655 mm
Hole diameter for wall mounting	230 mm
Power transmission shaft speed and power requirement	750 rpm approx. 100 hk 1000 rpm approx. 150 hk
Number of blades on propeller	3 pcs.
Propeller diameter	555 mm
Power transmission shaft	Extra equipment
Standard connection pin	1 3/4" 6Z
Asseccories:	
Standard power transmission shaft	2962158
Power transmission shaft wide angle to tractor	2962159
Power transmission shaft wide angle to propeller	2962163
Cutting knife Recommended in basements with a lot of grass residue	1321013

Mounting instructions



Mounting

The wall propeller agitator is mounted as illustrated in the wall. The fixing bracket must be on the inside of the wall.

It comes with sealant to be used between the wall and the fixing bracket.

Must also be used between the mounting bracket and propeller stirrers.

The agitator has a labret seal between the drive shaft and the tube that slurry does not leak out of the storage. This coupling is lubricated by an oil container which is mounted at the height of the top slurry level. This is to have at least as high pressure inside as outside the seal. No special requirements for type of oil. We recommend bio-oil, which is not harmful to the environment if there is a leak.

This seal is replaceable and can be changed from the outside of the slurry store when the slurry level is below the agitator.

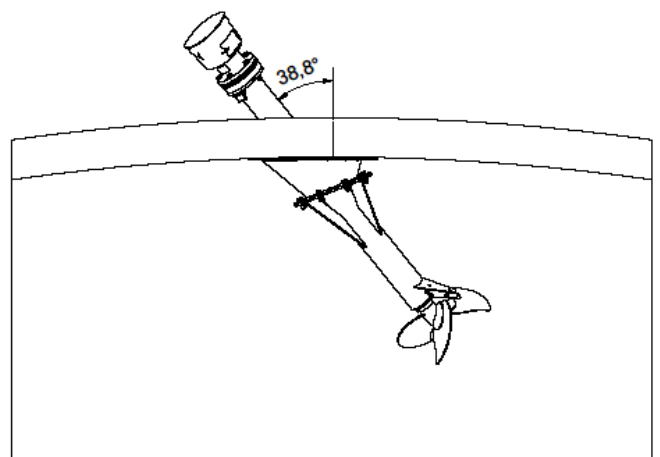
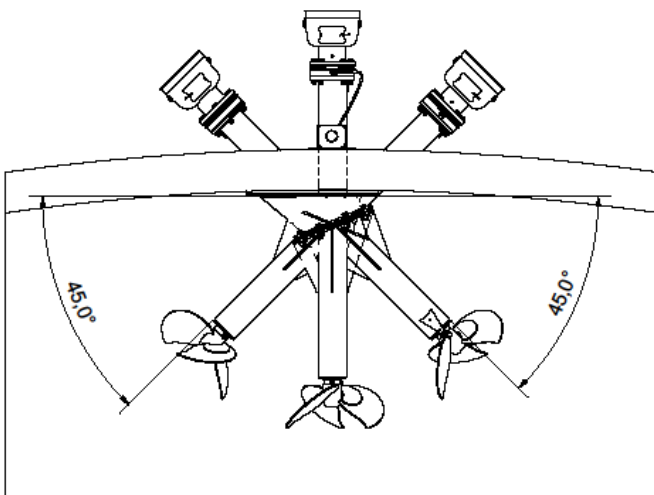
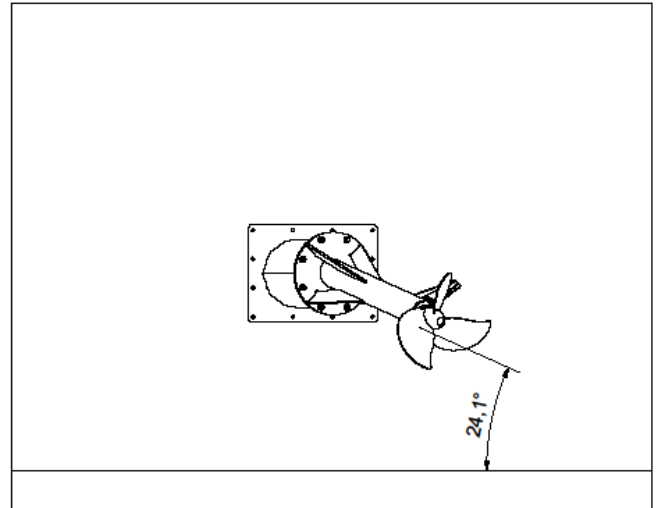
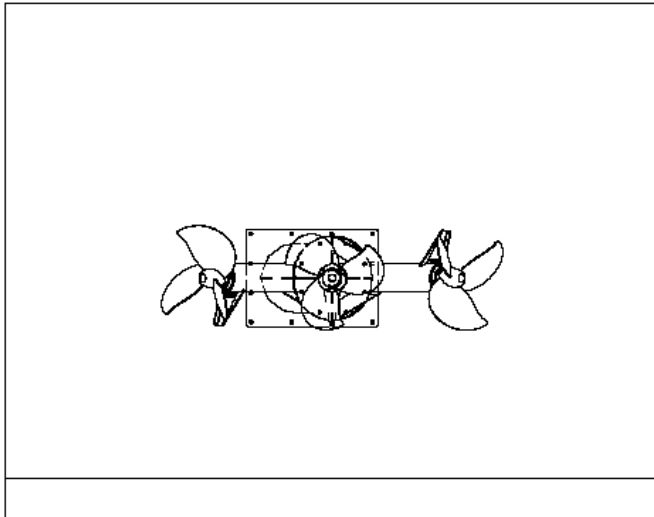
If the oil level in the container starts to decrease and slurry comes dripping out of the drainage hole, you have time to plan to change this seal the next time the storage is emptied.

The hose between the stirrer and the oil container is 4 meters and is cut to the correct length during installation.

The propeller stirrer is supplied with a loose mounting bracket. This is designed for the propeller agitator can be rotated in the bracket.

The angle the propeller stirrer gets inside the basement, is determined by how you attach the bracket to the wall and how you mount the propeller stirrer in the bracket (Look at the illustrations). The mounting hole in the wall must be at least 230 mm in diameter and the angle must be adapted to the desired angle of the propeller agitator inside the cellar.

These are examples of some options. By changing the mounting on the bracket and the ratio between the bracket and propeller stirrers, many different angles can be achieved.



Connection

Check that no one is standing between the tractor and the machine during connection. Back the tractor up to the propeller agitator and stop the engine before installing the power transmission shaft.

ATTENTION

Under no circumstances should the stirrer rotate when it is not immersed in liquid - This is due to the bearings at the bottom which are lubricated by the slurry mass!

Disconnection

This happens in the opposite order of connection.

When working on the machine and the PTO shaft, the power supply to the tractor must be disconnected.

Rotating shaft

Before connecting the power transmission shaft, ensure the following points.

Make sure that the shaft's protective tubes are intact and that the two halves of the shaft fit freely into each other. The length of the power transmission shafts must be adjusted carefully, if it is too long it can damage the bearing in the tractor's PTO or the propeller's bearings. Also ensure good lubrication of the profile tubes. Read the instruction manual for the power transmission shaft.

Check that the PTO shaft can be rotated by hand to ensure it is not buckling anywhere.

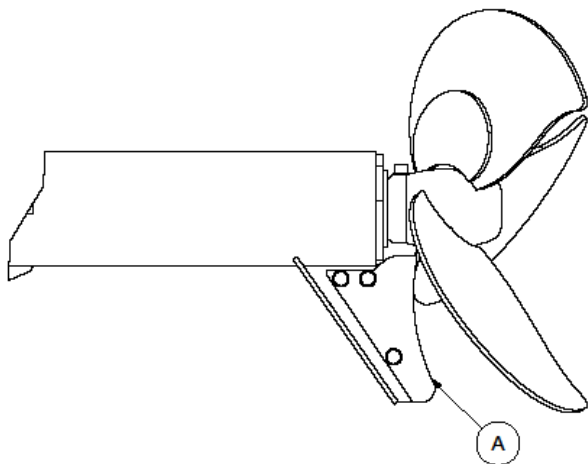
Make sure, all covers for the shaft are in good condition and correctly fitted. Never start the machine without this being in order! Pay particular attention to the plastic covers on the power transmission shaft. If these are damaged, they must be replaced immediately! The locking chains for the plastic covers must always be attached to suitable fasteners on the propeller to prevent the covers from rotating. The covers are lubricated according to the specified interval.

Mount the PTO shaft on the tractor's PTO with the shear bolt coupling against the propeller agitator. Safety chain is attached to the propeller to prevent rotation of protective covers. The power transmission shaft must always have a shear bolt coupling max. 4180 Nm. Check that the power transmission shaft will not sit in tension when the machine is lifted to a maximum. or min. height. Also note that the angle of the shaft can be too large when using very short shafts - contact the supplier - importer.

Correct speed

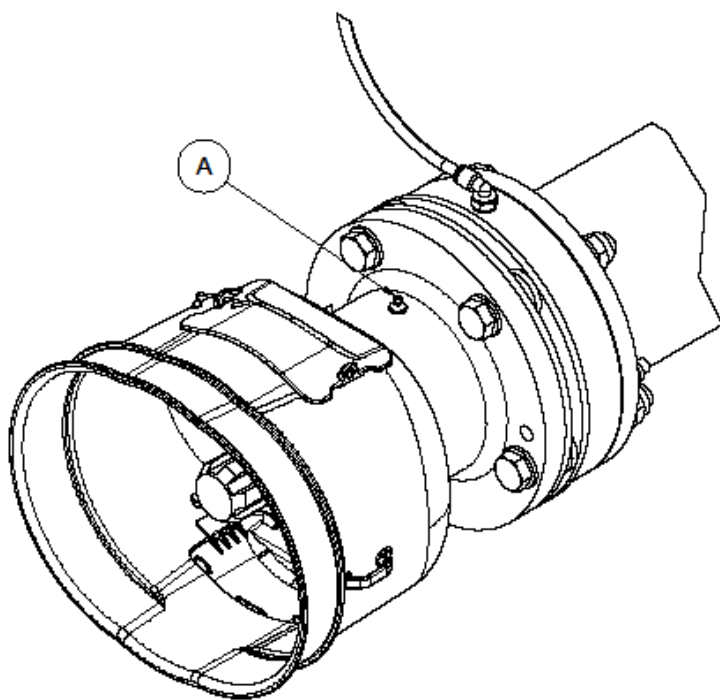
The mixer is designed for up to 1000 rpm. speed. Therefore, it is important to enter a speed that is favorable to the tractor and does not cause vibration. During an increase in speed, one will experience vibrations below so-called critical revs caused by self-oscillations. The effect of the propeller increases in line with speed and power consumption.

Cutting knife for extra cutting of the mass



To achieve even better cutting of "long-haired" manure, the accessory cutting knife A (Vnr 1321013) easily mounted as illustrated. All Duun propeller stirrers are prepared to be able to retrofit this accessory.

Service and maintenance



Subsequent inspection of screw connections

Screws - nuts - nipples and bolts on the machine must be tightened after two hours of operation.

Lubrication of the main bearing

It is necessary to lubricate this bearing frequently under heavy loads. The bearing is lubricated via the grease nipple at point A.

Interval: Every 4 operating hours and at the end of driving.

Recommended amount is minimum 7-8 grams per time. It is very important the warehouse has a new supply of lubricating grease when the stirrer is "reserved" after stirring. To prevent slurry damage in storage.

Power transmission shaft

When the wide-angle shaft works with fixed angle, the lubrication interval should be 2-4 hours to ensure the shaft has sufficient supply of lubricating grease.

Interval: Every 2-4. operating hours.

Maintained in accordance with the attached instruction manual. Please contact supplier if this is missing.

Grease quality: Good quality universal grease.

Gas hazard

1. Measures and points in connection with slurry gas.
2. Extraction fan in the basement contributes to negative pressure and extracts the gas.
3. If there is an open connection between the cellar and the animals housing, the grates can be covered with plastic to contribute to negative pressure when an extraction fan is used. A gas-tight connection between the animals housing and the basement provides greater security, especially when combined with an extraction fan in the basement.
4. Stir under wind - if possible with open windows and doors and closed gate.
5. If the discharge from stirring flows into the surface of the slurry storage, strong gas development occurs - especially in the starting phase. This is due to mixing of air and slurry mass.
6. Open doors in the barn and the gas will have a low outlet in the farm building itself.
7. Use a gas meter at all times in the animal rooms during slurry pumping. We believe this is absolutely necessary regardless of the type of pump and whether or not you have a tight connection.
8. Avoid unnecessary stay near the shaft and propeller during slurry release/stirring.

We therefore recommend the IBT article (Department of Technical Sciences ÅS/NLH) no. 33/87 "measures against slurry gas poisoning" for more details.

9. Never stir in calm and windless weather!
10. Ensure proper ventilation in animals housing. Let all fans run at full blast, remember, all doors and windows must also be opened.
11. Make sure that ventilation fans do not draw air from the pump inside. If there are openings in the gate or pump sump and the wind direction blows against these, slurry gas can be forced from the basement up into the barn.
12. Do not stand near the filling opening of the transport tank during filling, or in the pump pit during stirring.
13. Never enter animals housing where there may be suspicion of slurry gas without a gas mask with gray filter B. Remember that there must be enough air present even when you use a mask!
14. Never go down into a slurry cellar or tanker without fresh air equipment.
15. If possible, agitation should be carried out when there are no animals inside.
16. Stir gently. Remember that new equipment can cause the effect to increase so that the stirring becomes more powerful and the risk of a gas accident increases.

*Points 9-16 ref. Agriculture's HSE service.
www.lhms.no*

Declaration of conformity

Responsible person

Name: Karl Martin Eggen
Position: CEO
Company name: Duun Industrier as
Address: N-7630 Åsen
Norway
Telephone: +47 74 01 59 00

Person responsible for the technical documentation: Rolf Even Duun

Declares that the following machine: VPO20 Slurry mixer
Manufacturer: Duun Industrier as
Type: Duun Slurry mixer VPO20
is in accordance with:

Directive 2006/42/EC Machinery

Signed by:



Karl Martin Eggen

Åsen, 15.09.2020